

CANADIAN BOARD OF EXAMINERS FOR PROFESSIONAL SURVEYORS

**SCHEDULE II / ITEM 5
LAND INFORMATION SYSTEMS**

March 2010

Note: The use of calculators or similar devices is not permitted in this exam.

Note: This examination consists of 9 questions on 1 page.

Marks

Q. No

Time: 3 hours

Value Earned

1.	a) Define geometries and attributes as the two components of GIS data.	5	
	b) Name and briefly explain two tools or techniques for vector data analysis.	5	
	c) Explain the difference between vector data and raster data in terms of data representation.	5	
	d) With sketches if necessary, explain the relationship between cell size, raster data resolution, and raster representation of spatial features.	5	
2.	There are two methods to deal with topological relationship data: 1) computing it on the fly; and 2) pre-computing it and storing it in the database for later retrieval. Briefly discuss the advantages and disadvantages of each.	8	
3.	Given two digital maps of a city: one shows landmarks, and the other shows restaurants. One of the attributes of the restaurants layer lists the type of food (e.g., Canadian, Chinese, Japanese, etc.). Suppose you want to find a Chinese restaurant within 1000 metres of Landmark A. Describe the steps you would follow to complete the task.	10	
4.	There are some variations in GIS buffering depending on the way the buffer distance is defined. Describe three of them.	8	
5.	What are the advantages of using a DEM and a TIN for terrain modeling and analysis?	8	
6.	Define the georelational data model that has been implemented in a number of vector-based GIS such as ArcView GIS, CARIS GIS, etc.	5	
	Briefly explain how data are organized and stored in GIS based on this model.	5	
7.	a) Metadata is data about geospatial data. What are metadata?	4	
	b) What is the value of metadata from both the user and producer perspective?	4	
	c) What are the major uses of metadata?	4	
8.	What are <i>de facto</i> and <i>de jure</i> standards?	5	
	Describe at least two examples of geospatial data standards which fall into each category.	5	
9.	For a GIS project, write a short essay arguing about whether the required GIS software should be developed in house or purchased from a commercial company (GIS software vendor).	14	
Total Marks:		100	